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REPAIR OF RUPTURE OF THE PERINEUM
THROUGH THE SPHINCTER ANI

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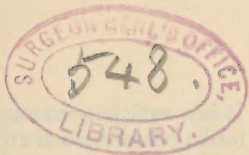
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NOTES ON THE REPAIR OF RUPTURE OF THE PERINEUM THROUGH THE SPHINCTER ANI.¹

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MY excuse for bringing the subject of complete rupture of the perineum before this Society, a subject that has been gone over again and again in the medical societies and the medical press of the world during the last twenty years, is my conviction that in spite of the amount of attention it has received, the matter is not properly understood by the profession. This is instanced by the large number of complicated operations invented for the repair of this injury, and, from my observation of the operation in the hands of prominent operators, where I have found that a very considerable proportion of the operations have been failures either in restoring the function of the sphincter or in leaving the patient without a proper perineum. I have reference to the secondary operation.

It is in the hope of provoking discussion on an important subject that I shall state my views somewhat dogmatically.

Operators advocate flap splitting, the use of the rectal tube after operation, a preliminary operation on the rectal tear followed later by a closure of the vagina, keeping the bowels constipated for a week or ten days after operation and other measures that I believe are faulty in principle.

The problem of the closure of a complete rupture of the perineum is a comparatively simple one after we have studied Emmet's conclusions and mastered his technique. There has been a great deal said about Emmet's operations for lacerated cervix and perineum; but, from my observation few operators who have not seen him do these operations have grasped his ideas.

¹ Read before the Obstetrical Society of Boston, May 11, 1895.

It is a sufficient commentary to note that one of the leading American text-books of gynecology, published only four years ago, has an entirely erroneous description of his perineal operation for rupture of the pelvic floor.

Although there have been some valuable additions to Dr. Emmet's procedures since he first called the attention of the profession to the repair of complete rupture of the perineum some twenty-five years ago, notably the stretching and paralyzing of the sphincter fragments before operation and the early moving of the bowels after operation, I think I am right in saying that we owe a correct understanding of the repair of these injuries to the genius of the Grand Old Man of Gynecology.

The location and form of the common tears of the perineum have been shown by Reynolds² and more recently by Dickinson.³

Granting what Dickinson says, that complete rupture never takes place in the median line, nevertheless, when these tears are seen some months or years after the injury, their general appearance is, as he says, median. Not only are they median, but in a majority of cases that have come under my observation, there has been no appreciable damage to the pelvic floor, beyond the rupture of the perineum and the sphincter ani. Whether this is due to the fact that there was no original injury to the pelvic floor, or that the injury has been repaired by cicatrization, I cannot say. This is shown by the close apposition of the posterior and anterior vaginal walls and by the absence of prolapse, conditions that do not obtain when there has been appreciable damage to the levator ani and pelvic fascia.

Clinically it is important to draw a distinction between injuries to (1) the pelvic floor proper (the levator ani muscle and pelvic fascia); (2) the perineum

² Transactions American Gynecological Society, 1891.

³ American Gynecological and Obstetrical Journal, vol. vi, No. 5.

(the external muscles and tendons, transversus perinei, and bulbo cavernosus); and (3) the sphincter ani. For we are able to distinguish between these three sorts of injuries and we adapt our measures for repair to each. For instance, after the parts have cicatrized we cannot say whether the bulbo cavernosus or transversus perinei muscle has been torn; but, by means of our sense of touch and by noting whether the floor of the pelvis is up against the anterior vaginal wall, as in the normal condition, we can say whether the pelvic floor is injured. We can also estimate, by sight as well as by touch, the external tears and the tears of the sphincter ani. Now, if the pelvic floor has suffered injury, it is probably in one or the other sulcus, as shown by Reynolds, perhaps in both; and it must be repaired by denuding in the sulci and catching up the sundered structures, according to the rules laid down by Emmet. If, on the other hand, the injury has been to Group 2 or 3, to the perineum proper or external muscles and to the sphincter ani, the repair is effected by bringing the separated parts together by sutures passing through the divided structures straight across from side to side.

In complete rupture, so called, or rupture involving the sphincter ani, it has been my observation that in a majority of cases the injury is, as I have said, limited to Groups 2 and 3. Therefore, the operation for the repair of this condition is much simpler than if it involved also the repair of the pelvic floor.

The appearance of the parts when cicatrization has taken place is about as follows: (Fig. 1.) The sphincter ani, torn in two, is retracted, the ends being represented by a small dimple in each buttock. The concave retracted sphincter forms the lower margin of the anal orifice, the upper margin being made by the more or less torn recto-vaginal septum. It is usually V-shaped, with the apex of the V above. The mucous membrane of the rectum is everted, red, and covered with mucus. The posterior vaginal wall at the apex

of the V is in apposition with the anterior vaginal wall. The patient suffers only from incontinence of feces and gas.

The operation for the repair of a torn perineum should be undertaken as soon after the receipt of the injury as possible, that is, at the conclusion of labor, if the patient's strength will allow. At the primary operation it is possible to make out with more or less accuracy the individual muscles that have been torn and to draw together their ends. At the secondary operation, after cicatrization, this is rarely possible. The primary repair is effected by means of stitches of silkworm gut passed straight across from side to side, entering the needle at a quarter of an inch from the torn edge of the vagina on the left side at the highest point of the rent. The point of the needle is brought out at the edge of the rectal mucous membrane, reinserted in a similar place on the opposite side, and out again on the vagina on the right side at a quarter of an inch from the edge. Stitches are placed a quarter of an inch apart, and extend from the uppermost limit of the rent in the vaginal septum to the superficial stitch in the sphincter. The remaining steps of the operation are precisely the same as for the secondary operation to be described shortly, except that there is no denuding to be done, and the tissues being soft and edematous it is of especial importance not to tie the sutures too tightly. The after-treatment is the same.

There is no doubt in any one's mind that at this stage the object of the operation is to restore as far as possible the original condition of the parts. I speak of this fact because later on when the secondary operation is under consideration we hear of "building up a perineum," and many operators seem to be devoting their energies to manufacturing some sort of an artificial dam at the vulval outlet; something that, when built, does not much resemble anything seen in nature, as I can testify by frequent observation. My aim in doing the secondary operation is to restore

the natural relation of the structures of the perineum and sphincter. The burden of proof rests with those who claim to improve on nature.

The secondary operation for the repair of a complete rupture should be undertaken as soon as the torn edges have cicatrized. If a primary operation has been done and has been unsuccessful and followed by induration of the surrounding tissues, a sufficient time must be allowed to elapse for the tissues to regain a healthy condition or the secondary operation will not be a success. It may take several months of treatment with douches to prepare the parts. This is a point often overlooked.

The advantage of operating reasonably soon after the receipt of the injury is that the sphincter ani muscle becomes atrophied from long disuse; and the results obtained from operations done several years after are not as good as those done several weeks or months after labor. I have, however, operated on two cases eight years after the rupture in each case, and obtained a perfect result with both.

The operation about to be described has proved uniformly successful in my hands, both in restoring the sphincter ani and in bringing back the normal contour of the perineum. It is Emmet's operation, that I learned at the Woman's Hospital in New York, with several modifications suggested by experience. The principal points to be remembered in the operation may be grouped as follows:

- (1) Preparatory treatment.
- (2) Preliminary stretching of the torn sphincter muscle.
- (3) Method of denuding.
- (4) Passing of the sutures.
- (5) Fastening of the sutures.
- (6) After-treatment.

Inattention to the details of any one of these six groups will lead to failure. Success lies in careful and painstaking attention to minute details. It goes

without saying that the operation should be aseptically conducted, the vagina and vulva being first thoroughly scrubbed with green soap, water and a nail-brush and then with corrosive (1-2,000). The instruments and sponges are sterilized and the operator's and assistants' hands and arms rendered aseptic. In operations on the vagina and anus, especially where the rectal mucous membrane is exposed, absolute asepsis of the operation field is impossible. Clinically, I have obtained the best results by sponging the tissues occasionally during the operation with 1-3,000 corrosive. On account of the excessive vascular supply of the parts, the corrosive does not interfere with the nutrition, but seems to promote primary union.

(1) The preparatory treatment consists in getting rid of all traces of suppuration and induration in the tissues by douching, and in thoroughly opening the bowels for a week before the operation. For the latter purpose a five-grain pill of ox-gall three times a day, and castor oil forty-eight hours before the operation, followed by an enema the morning of the operation are to be recommended. Thorough attention to the bowels is of extreme importance because of the danger of scybalous masses passing the sphincter during the first days following its restoration. To further ensure there being no hard masses in the bowel the diet should be restricted to broths and soups for two days before; milk being forbidden.

The patient should be given three prolonged, hot vaginal douches (temperature of 120° F.) the day before, and one the morning of the operation. This douching very much lessens the amount of oozing, an important consideration both for the patient and for the operator.

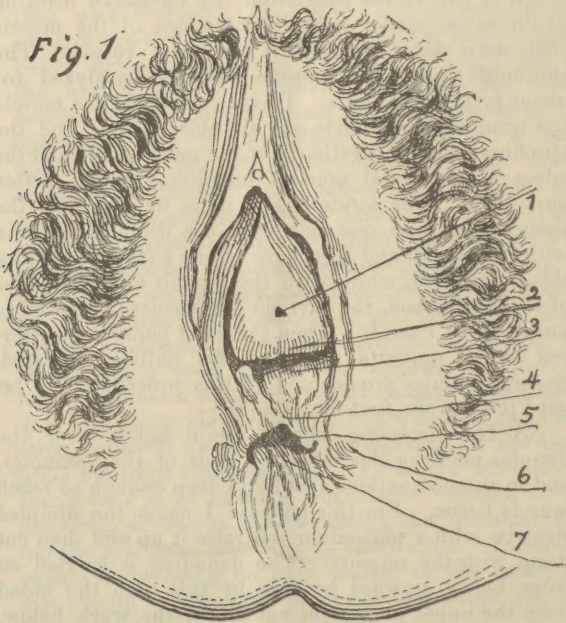
(2) The chances of success are much increased by following the rule in all rectal operations, namely, First stretch the sphincter. It may be argued that the sphincter has been already not only stretched but torn in two. Very true; but it has been in a state of

rest since it was torn, and is in addition contracted. The moment the torn ends are stitched together and the patient is out of ether the irritation from the accumulation of gas, or the pain from the operative bruising of the parts, causes reflex contractions of the muscle that must interfere with a successful result. The thoroughly stretched muscle remains paralyzed for about forty-eight hours. Having stretched the muscle the bringing of the ends out of their pockets and the stitching of them together is made much easier and the edges of the rectal mucous membrane make better apposition. The stretching is done by grasping the tissues firmly on one side over the dimpled cicatrix with the thumb and forefinger of one hand and holding this point fixed, while with the thumb and forefinger of the other hand, the surrounding tissues are forcibly pulled away from it. Then the fixed point is transferred to the opposite side and the pulling repeated. Several minutes are devoted to this procedure. I regard it as of the first importance.⁴

(3) The denuding should begin below over the dimples marking the retracted ends of the sphincter, and in these situations should go deep enough to reach muscle tissue. For this purpose I catch the dimpled cicatrix with a tenaculum and raise it up and then cut it out with the scissors. The denuding is carried on from below upward because by this plan the blood from the upper parts does not hinder the work below. Above, in the vagina, the denudation should go at least half an inch beyond the upper limit of the rectal tear. It makes the line of union firmer to have two or three stitches above the beginning of the opening into the rectum. The cicatrized margin of the rectal mucous membrane must be carefully refreshed. The limits of the cicatricial tissue are the limits of the denudation throughout. On the outside the uppermost

⁴ It is fair to say here that I have to-day received a letter from Dr. Emmet in which, although endorsing the chief views expressed in this paper, he says that he has not stretched the sphincter and does not believe it necessary.

caruncle is the highest limit of the denudation. Scissors are preferable to the knife, because by the pinching action of the scissors on the tissues the bleed-



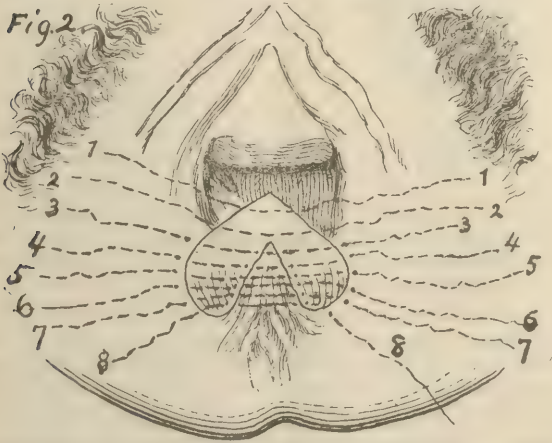
1, Meatus urinarius. 2, Anterior vaginal wall. 3, Posterior vaginal wall. 4, Upper limit of tear in recto-vaginal septum. 5, Anal orifice. 6, Dimple marking left end of sphincter ani. 7, Everted rectal mucous membrane.

ing is less. Dr. Emmet has used scissors exclusively in his plastic work for many years.

Cases of recto-vaginal fistula and cases of rupture of the major part of the sphincter without complete division of all the fibres, are treated by cutting through the sphincter muscle and then treating the case exactly as if it were a complete tear originally. In this way

only is it possible to denude the edges of the rectal fistula properly or to restore the function of the sphincter.

(4) The sutures should be of pure silver wire, No. 29, and the wire should be polished. Copper wire, silver-plated, is not pliable enough. The same fault attaches to the larger sizes of wire. The first stitch is



taken at the apex of the denudation in the vagina (Fig. 2). The needle (I prefer one with a round point, an inch and a quarter long and slightly curved at the point) is entered a quarter of an inch from the left-hand edge and buried until it emerges at a corresponding point on the opposite side of the wound. When the gap in the rectum is reached, the point of the needle is brought out so that it just misses the rectal mucous membrane. It is then reinserted on the opposite side so that it misses the rectal mucous membrane there and thence through to emerge on the surface of the vagina. The stitches are a quar-

ter of an inch apart beginning above and ending at the anus, all straight across as described.⁵ When

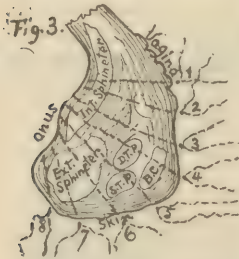


Fig. 3. Antero-posterior section of perineum, not in median line.

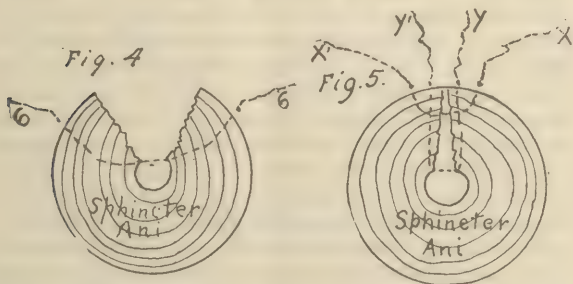
the ends of the sphincter ani are reached, the point of the needle is made to dip down deeply so as to pass through the entire thickness of the retracted end of the muscle as described on page 397 of Emmet's book, "Principles and Practice of Gynæcology," 1884. (Figs. 4 and 5.) It is often well to hold up the end of the muscle with a tenaculum while the needle is being passed, thus ensuring that the

entire thickness of the end of the muscle is included and that the needle passes far enough from the ends. Two deep sutures are passed in this way and one superficial, which brings the outer edges of the muscle into apposition. I have not used the stitch formerly advocated by Emmet that ran from posterior to the ends of the sphincter up through the lower border of the recto-vaginal septum, because passing through the other sutures at an angle, it constricts the tissues and is apt to cause an abscess. Emmet himself has not used it for several years now.

Dr. Emmet stated in 1873 that after years of study, he had arrived at the conclusion that the cause of failure in perineal operations involving the sphincter, was chiefly owing to a faulty method of passing the sutures through the sphincter, and he published then,

⁵ It is to be noted that the line from the fossa navicularis to the anal opening on the outside skin surface, is the arc of a larger circle than is the line from the apex of the rectal tear to the anal opening on the anterior surface of the rectum, therefore, the stitches are farther apart from the fossa navicularis to the anus on the skin side and nearer together on the rectal side. "They radiate here like the sticks of a fan," as Emmet expresses it. That is to say, they are more than a quarter of an inch apart outside and less than a quarter of an inch apart on the rectal side. (Fig. 3.)

what is now generally conceded to be the proper method. It is to be noted that in passing the sutures there is no elaborate scheme to be followed; they are all passed in the same way, except those through the end of the sphincter, which are placed deeper than the rest, as described. The greatest possible care must be exercised to make the stitches equi-distant and considerable time and attention are necessary to do this properly. Perfect apposition of the lips of the wound



X, x' shows stitch improperly passed. y, y' and 6, 6 shows stitch properly passed; 6 corresponds to 6 in Fig. 2.

is to be aimed at. No cicatricial tissue is to be left in denuding and no raw surface is to be left at the end. It is to be noted that no rectal stitches are used. These are hard to place, hard to remove and, to my mind, quite useless.

The operation is an almost exact counterpart of that for vesico-vaginal fistula. In the latter operation no stitches are placed in the bladder mucous membrane. Why should any be put in the rectal mucous membrane?

(5) If silver wire is used, each suture should be shouldered and then twisted through the shield, beginning above in the vagina and ending at the anus. The shield should be used, not as I have often seen it used, simply as an instrument to hold the tissues down

while traction is being made on the wires, but as furnishing a sharp edge over which to bend the wires until they are twisted. The rule is to get the proper tension and then twist until the wires cross at the shield. The tension on the stitches must be carefully graduated, experience alone telling what is the proper amount to employ. It is a common fault to get them too tight. The twisted ends in the vagina should be cut off about three-quarters of an inch long and folded down as Dr. Emmet does it. Those on the outside should be clamped, each with a perforated shot at a distance of a quarter of an inch from the skin and the ends cut off in the shot, thus leaving no sharp points projecting. Before twisting the outside sutures, it is essential that the patient's feet should be brought down so that they rest on the table, because the lithotomy position, in which the rest of the operation is performed, puts the perineum on the stretch. This point has a bearing on the after-treatment, as we shall see.

The use of silver wire requires a special training. If an operator has been unable to make himself familiar with Emmet's ideas on this subject, he had better not use it but use silkworm gut instead. Wire makes an ideal suture material. Besides being perfectly strong, non-porous and capable of being rendered aseptic, it forms when properly placed a splint for the tissues while union is being established. Fastening the ends of the sutures with shot is much superior to the older method of enclosing them in a tube, as, with the shot, they are less likely to get caught on the clothing and they are much easier to keep clean.

(6) The after-treatment is as important as the operation itself. Formerly it was the recognized treatment to keep the bowels constipated for ten days or two weeks, feeding the patient on beef-tea and chicken broth, until they were moved. This method had the disadvantage of being unnatural, uncomfortable, and of leaving the patient very weak from the lack of

nourishment when she began to sit up. By this method also, it was thought necessary to keep the patient's knees tied together, until the stitches were out and to keep her on her back continuously. And besides, the urine had to be drawn by catheter. Simplicity in technique has now taken the place of all these precautions. It is not many years since it was thought to be essential that every laparotomy case should be kept flat on the back for at least forty-eight hours after the operation.

Any one who has had the care of women operated on by the older methods has a pretty vivid idea of the suffering that is entailed by constipation of ten days, nothing but beef-tea for nourishment, not being allowed to turn over in bed, and the frequent use of the catheter, even if the patient was fortunate enough to escape a cystitis. Afterwards came a long tedious convalescence.

The after-treatment I employ in cases of rupture of the perineum through the sphincter is as follows: At the conclusion of the operation the vagina is douched with corrosive, the parts about the vulva are dried with a sterile towel and the patient is put to bed. The motions of the patient in bed are restrained only until she is well out of the ether. Then, unless she is a nervous and excitable person, she may be turned on her side carefully by the nurse for the sake of variety and to ease the backache. If, on the contrary, she is wilful and difficult to control, she must be kept on her back for twenty-four hours, because in this way only is it possible to prevent twitching about. Excessive flexure of the thighs on the abdomen and separation of the knees while in this position are the only two postures that put the perineum on the stretch. The patient if left to herself is not likely to put herself into these positions. Twitching about is objectionable because the wound is likely to be rubbed on the bed-clothes. Any reasonable amount of abduction of the thighs with the legs extended is in no way harmful,

therefore there is no need of tying the knees together except as a reminder to a nervous patient to keep still.

The patient is to pass water voluntarily if she can. Every effort is made to avoid the use of the catheter, because even when it is used a few drops of urine always get on the wound. Therefore why not let the urine run freely over the perineum. After the use of the catheter, no matter how aseptic it is, of what material made, or how carefully it is passed, a certain proportion of cases have a resulting cystitis, which much prolongs the convalescence and leaves the bladder in an irritable condition. Each time after micturition the nurse separates the labia and squeezes a little warm water from a piece of absorbent cotton over the parts. She performs the same office after every movement of the bowels. Twice a day, night and morning, the parts about the vulva are bathed with warm corrosive (1-5,000).

The diet is limited to gruels and broths for three or four days, the object being to have the nourishment concentrated and with as little resulting fecal matter as may be. At the end of this time the patient has semi-solid diet and when she gets up solid food.

The bowels are moved on the morning of the next day following the operation with a saturated solution of Epsom salts, a teaspoonful of which is given every half-hour until the bowels move a little, or until five doses have been administered. The salts are repeated each day in sufficient quantity to cause two or three fluid movements in every twenty-four hours. This is the rule until the stitches come out on the eighth day.

By the method of treating the bowels just outlined all danger of scybalous masses passing the sphincter and spoiling the result is avoided. The amount of fecal matter that often accumulated in the lower bowel at the end of ten days of treatment by the constipating plan was surprising; and it was a job of considerable magnitude, necessitating a great deal of manipulation, many enemas, and sometimes even digital evacuation

to establish a free rectum. Many newly united sphincters were unable to stand the strain put on them in this way. By moving the bowels early and often there is no trouble with flatus. No rectal tube is necessary, and therefore no dilating of the sphincter, and the pushing of a hard, unyielding foreign body by the line of union. No enemias are necessary. The less the operation field is handled the safer I feel as to the result. Should there be a great amount of soreness about the wound I have two small pieces of linen or gauze soaked in Pond's Extract and water, equal parts, placed one on each side of the shotted sutures and kept wet. As a routine, one corrosive douche of two quarts (1-5,000) is given twenty-four hours after the operation, to cleanse the vagina of any blood that may have collected there. No further vaginal douche is given until the stitches are removed.

The patient sits up on the tenth day, and is about in two weeks.

Emmet gave utterance to most of the ideas advocated in this paper at least ten years ago. Six years ago I was first impressed by the results obtained by stretching the sphincter before operation and moving the bowels soon after, and found them far better than by any other method. Since then I have operated by that method, and have had uniformly successful results; and it is because of these favorable results, and because I believe the correct principles of repair are shown in the technique, that I have ventured to call your attention to the subject anew.

The points that seem to me to be of especial importance are the preliminary stretching of the sphincter; thorough attention to the bowels, both before and after the operation; and in operating in the simplest manner possible, that is, by using only one set of interrupted sutures passed straight across.

